UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,100	12/29/2000	David E. Baraff	022972-00005	6391

			EXAMINER
20350	7590	10/18/2005	STEVENS, THOMAS H

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/750,100	BARAFF ET AL.
	Examiner	Art Unit	
	Thomas H. Stevens	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 July 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>9/7/05</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (P⌐

6) ☐ Other: _____ .

DETAILED ACTION

Section I: Non-Final Office Action (4th Office Action)

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-20 are rejected under 35 U.S.C. 102 (b) as disclosed by Chadwick et al

(Layered Construction for Deformable Animated Characters (1989)); hereafter

Chadwick). Chadwick teaches a methodology for creating and animating computer

generated characteristics which combines recent research advances in robotics,

physically based modeling and geometric modeling (abstract) with established

thresholds (Chadwick: pg.248, left column, lines 1-2) and kinematic to dynamic

simulation interaction (pg. 250, section 5, System Overview).

Claim 1. A method of simulating relative motion of objects (Stoneking: column 3, lines 8-

10) in threshold (Chadwick: pg.248, left column, section 4.2, lines 1-5) comprising:

providing a motion of a kinematic object, where the kinematic object is an element of a

threshold (Chadwick: pg.248, left column, section 4.2, lines 1-5) display; providing at

least one dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3,

right column)associated with said kinematic object, where said at least one dynamic

object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column) is

another element of the threshold (Chadwick: pg.248, left column, section 4.2, lines 1-5)

display and where motion of said at least one dynamic object (Chadwick: pg.250,

system overview with pg. 244, section 1.3, right column)is influenced by the motion of

the kinematic object, wherein the motion of said at least one dynamic object (Chadwick:

pg.250, system overview with pg. 244, section 1.3, right column)is simulated using a

physically-based numerical technique; and manipulating the motion of said at least one

dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right

column) in response to the motion of the kinematic object when the motion of the

kinematic object exceeds a predetermined threshold (Chadwick: pg.248, left column,

lines 1-2) such that the motion of the at least one dynamic object (Chadwick: pg.250,

system overview with pg. 244, section 1.3, right column; and pg. 244, left column lines

7-10) is influenced differently by the motion of the kinematic object when the motion of

the kinematic object exceeds the predetermined threshold (Chadwick: pg.248, left

column, lines 1-2); and displaying the elements of the threshold (Chadwick: pg.248, left

column, section 4.2, lines 1-5) display, including associated motions of said elements.

Claim 2. A method of simulating relative motion of objects according to claim 1wherein

said manipulating the motion of said at least one dynamic object (Chadwick: pg.250,

system overview with pg. 244, section 1.3, right column)comprises compensating for

motions of said at least one dynamic object (Chadwick: pg.250, system overview with

pg. 244, section 1.3, right column) when the motion of the kinematic object motion

exceeds the predetermined threshold (Chadwick: pg.248, left column, lines 1-2).

Claim 3. A method of simulating relative motion of objects according to claim 2 the

motion of said at least one dynamic object (Chadwick: pg.250, system overview with pg.

244, section 1.3, right column) manipulated when the motion of the kinematic object

comprises accelerations that are unrealistic for humans.

Claim 4. A method of simulating relative motion of objects according to claim 2 wherein

the manipulating comprises compensating for the motion of said at least one dynamic

object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column)

when the kinematic object undergoes accelerated motions above a predetermined limit.

Claim 5. A method of simulating relative motion of objects according to 2 claim wherein

said kinematic object is an animated character and said at least one dynamic object

(Chadwick: pg.250, system overview with pg. 244, section 1.3, right column) is coupled

to the animated character.

Claim 6. A method of simulating relative motion of objects according to 2 claim wherein

said at least one dynamic object (Chadwick: pg.250, system overview with pg. 244,

section 1.3, right column)is a representation of attached to the animated character.

Claim 7. A method of simulating relative motion of objects according to claim 5 wherein said at least one dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column) is a representation of clothing attached to the animated character.

Claim 8. A method of simulating relative motion of objects according to claim 1 wherein said at least one dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column) comprises a first set of dynamic objects and a second set of dynamic objects and manipulating the motion of said at least one dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column)comprises selectively manipulating motions of said first set of dynamic objects with respect to a first reference point on said kinematic object) and selectively manipulating motions of said second set of dynamic objects with respect to a second reference point on said kinematic object.

Claim 9. A method of simulating relative motion of objects according to claim 1 wherein said at least one dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column) comprises a plurality of dynamic objects coupled to a plurality of reference points on said kinematic object (Even: column 1, lines 43-51 with design choice) and wherein said step the motions motion of said at least one dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column) comprises manipulating the motions of each of said plurality of dynamic objects with respect to

said plurality of reference points coupled thereto.

Claim 10. A method of simulating relative motion of objects according to claim 9 wherein said kinematic object is an animated character (Stoneking: column 3, lines 1-11; column 18, line 51) and said plurality of dynamic objects are coupled to the animated character (Stoneking: column 3, lines 1-11; column 18, line 51) and said plurality of reference points are different points on the animated character (Stoneking: column 3, lines 1-11; column 18, line 51; column 4, line 9).

Claim 11. A method of simulating relative motion of objects according to claim 9 wherein manipulating comprises compensating for motions of said plurality of dynamic objects when the kinematic (Stoneking: column 3, lines 9-11) object undergoes exaggerated motion.

Claim 12. The method of claim 1 wherein manipulating the motion of said at least one dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column)comprises manipulating the motion of the said at least one dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column) when acceleration of the kinematic object exceeds the predetermined threshold (Chadwick: pg.248, left column, lines 1-2).

Claim 13. A threshold (Chadwick: pg.248, left column, section 4.2, lines 1-5) system

comprising: a processor; wherein the processor is configured to: receive information

specifying motion for a kinematic object (Even: column 6, lines 33-46); compute motion

for a dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3,

right column)based upon the motion of the kinematic object, wherein the motion of the

dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right

column)is specified using a physically-based numerical technique (Even: figure 4 with

column 3, lines 5-17); and manipulate the motion of the dynamic object (Chadwick:

pg.250, system overview with pg. 244, section 1.3, right column)in response to the

motion of the kinematic object when the motion of the kinematic object exceeds a

predetermined threshold (Chadwick: pg.248, left column, lines 1-2) (Even: column 2,

lines 40-49 with design choice); such that the motion of the at least one dynamic object

(Chadwick: pg.250, system overview with pg. 244, section 1.3, right column; and pg.

244, left column lines 7-10) is influenced differently by the motion of the kinematic object

when the motion of the kinematic object exceeds the predetermined threshold

(Chadwick: pg.248, left column, lines 1-2); and wherein the display is configured to

display the kinematic object and the dynamic object (Chadwick: pg.250, system

overview with pg. 244, section 1.3, right column)and their associated motions.

Claim 14. The method of claim 13, wherein the processor is configured to manipulate

the motion of the dynamic object (Chadwick: pg.250, system overview with pg. 244,

section 1.3, right column)when acceleration of the kinematic object exceeds the

predetermined threshold (Chadwick: pg.248, left column, lines 1-2).

Claim 15. The method of claim 13 wherein the kinematic object represents an animated character and the dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column)represents a hair attached to the animated character.

Claim 16. The method of claim 13 wherein the kinematic object represents an animated character and the dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column)represents clothing ("most comic book characters have clothing": Stoneking: column 4, lines 1-9) attached to the animated character.

Claim 17. A threshold (Chadwick: pg.248, left column, section 4.2, lines 1-5) apparatus comprising (Stoneking: column 3, lines 5-10): means for receiving information specifying motion for a kinematic object; means for computing motion for a dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column) based upon the motion of the kinematic object, wherein the motion of the dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column)is specified using a physically-based numerical technique; means for manipulating the motion of the dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column)in response to the motion of the kinematic object when the motion of the kinematic object exceeds a predetermined threshold (Chadwick: pg.248, left column, lines 1-2); such that the motion of the at least one dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column; and pg. 244, left

column lines 7-10) is influenced differently by the motion of the kinematic object when the motion of the kinematic object exceeds the predetermined threshold (Chadwick: pg.248, left column, lines 1-2); and means for displaying the kinematic object and the dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column)and their associated motions.

Claim 18. A computer program product stored on a computer-readable storage (Stoneking: column 3, lines 5-10) medium for simulating relative motion of objects (Stoneking: column 3, lines 1-11), the computer program product comprising: code for receiving information (Stoneking: column 7, lines 21-40) specifying motion for a kinematic object; code for computing motion for a dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column)based upon the motion of the kinematic object, wherein the motion of the dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column) is specified using a physically-based numerical technique; code for manipulating the motion of the dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column)in response to the motion of the kinematic object when the motion of the kinematic object exceeds a predetermined threshold (Chadwick: pg.248, left column, lines 1-2) such that the motion of the at least one dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column)is influenced differently by the motion of the kinematic object when the motion of the kinematic object exceeds the predetermined threshold (Chadwick: pg.248, left column, lines 1-2); and code for displaying the kinematic object.

Claim 19. A computer-implemented method of simulating relative motion of objects in

threshold (Chadwick: pg.248, left column, section 4.2, lines 1-5), the method

comprising: receiving information specifying motion for a kinematic object; computing

motion for a dynamic object (Chadwick: pg.250, system overview with pg. 244, section

1.3, right column)based upon the motion of the kinematic object, wherein the motion of

the dynamic object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right

column) is specified using a physically-based numerical technique; and manipulating

the motion of the dynamic object (Chadwick: pg.250, system overview with pg. 244,

section 1.3, right column)in response to the motion of the kinematic object when the

motion of the kinematic object exceeds a predetermined threshold (Chadwick: pg.248,

left column, lines 1-2) such that the motion of the at least one dynamic object

(Chadwick: pg.250, system overview with pg. 244, section 1.3, right column) is

influenced differently by the motion of the kinematic object when the motion of the

kinematic object exceeds the predetermined threshold (Chadwick: pg.248, left column,

lines 1-2)

Claim 20. The method of claim 19 wherein manipulating the motion of the dynamic

object (Chadwick: pg.250, system overview with pg. 244, section 1.3, right column)

comprises manipulating the motion of the dynamic object (Chadwick: pg.250, system

overview with pg. 244, section 1.3, right column) when acceleration of the kinematic

object exceeds the predetermined threshold (Chadwick: pg.248, left column, lines 1-2) .

Section II: Response to Applicant's Arguments

2.   Applicant's arguments, see pages 8-11, filed 29 July 2005, with respect to the

rejections of claims 1-20 under 35 USC 103(a) have been fully considered and are

persuasive. Therefore, the rejection has been withdrawn. However, upon further

consideration, a new ground(s) of rejection is made in view of Chadwick et al (Layered

Construction for Deformable Animated Characters (1989)).

Section III: Citation of Relevant Prior Art

3.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure:

- Westenhofer et al., "Using Kinematic Clones to Control the Dynamic Simulation of Articulated Figures" 1996.
  pg.26-35; Rhythm & Hues Studios, Los Angeles.
- U.S. Patent 6,559,849 (2003) Anderson et al.

Correspondence Information

4.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Mr. Tom Stevens whose telephone number is 571-272-

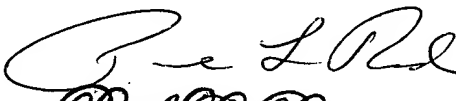3715, Monday-Friday (8:00 am- 4:30 pm EST).

If attempts to reach the examiner by telephone are unsuccessful, contact the

examiner's supervisor Mr. Leo Picard ((571) 272-3749). The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov.. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) (toll-free (866-217-9197)).

October 13, 2005

Primary Examiner
Art Unit 2125

TS